

**Scrofulariacées du Yunnan Occidental
récoltées par M. J. Rock.**

DÉTERMINÉES PAR GUSTAVE BONATI.

I. PHTHEIROSPERMUM, BUNGE

1. P. tenuisectum, Bur. et Franch.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range; flowers brownish-green, or yellow, Chin-Hai-tze. 11,000 ft. 13-6-1922." J. F. Rock. No. 4457.

Also "Flowers yellow, Ashi road. 11,000 ft. May 30-June 6, 1922." J. F. Rock. No. 4627.

Also "Flowers yellow, Takoo, xerophytic region. May 25, 1922." J. F. Rock. No. 3912.

II. PTERYGIELLA, OLIV.

1. P. Duclouxii, Franch.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range between Chin-Hai-tze and Nguluke; flowers yellow. July 1922." J. F. Rock. No. 5431.

2. P. nigrescens, Oliv.

"Yunnan: Between Likiang and Talifu, Lung Kwei road; flowers purplish. August 1922." J. F. Rock. No. 6319.

III. PEDICULARIS, LINN.

Section I. Anodontae Alternifoliae.

A. Série Gloriosae.

1. P. tsekouensis, Bonati

"Yunnan: Mount Shwemenkan, between the Chungtien River and the Yangtze, north-west of the Likiang Snow Range. 13,000 ft. Flowers purple. July 1923." J. F. Rock. No. 9730.

B. Série Hirsutae heteroglossae.

2. P. angustiflora, Limpr. (P. stenantha, Franch.)

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. 12-14,000 ft. Flow pale lemon-yellow. June 14, 1922." J. F. Rock. No. 4466.

Also "15,500-16,000 ft. July 1923." J. F. Rock. No. 9418.

[Notes, R.B.G. Edin., No. LXXIII, August 1926.]

Section II. *Anodontae Verticillatae*.A. Série *Verticillatae*, Maxim.3. *P. lineata*, Franch.

"Yunnan: Eastern slopes of Likiang Snow Range, Yangtze watershed. 15,000 ft. Flowers purple. July 1923." J. F. Rock. No. 9419.

"Yunnan: Eastern slopes of Mount Dyinaloko, northern peak of the Likiang Snow Range, Yaholo, Abies forest. 13,000 ft. Flowers pale purple. Aug. 1923." J. F. Rock. No. 10,437.

3^{bis}. var. *dissecta*, Bonati. Diffère du type par les feuilles étroites, plus profondément lobées et plus longuement pétiolées.

"Yunnan: Mountains of Moting, north-east of the Yangtze-Mekong watershed. 14-15,000 ft. Flowers purple, grassy slope. June 1923." J. F. Rock. No. 10,341.

4. *P. likiangensis*, Franch.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Flowers pink, alpine meadow. 14,500 ft. July 8, 1922." J. F. Rock. No. 4940.

Also "Flowers purple. 15,000 ft. July 1922." J. F. Rock. No. 5464.

Also "Flowers rich purple. 15,000 ft. July 1923." J. F. Rock. No. 9434.

5. *P. rupicola*, Franch.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range, Peshwe-Pa. 12-13,000 ft. Flowers pink. June 17, 1922." J. F. Rock. No. 4537.

Also "Leaves crisp, bright green. Flowers rich pink, alpine meadows 12-14,000 ft. June 26, 1922." J. F. Rock. No. 4697.

Also "Flowers lavender-purple, alpine meadow. 13-16,000 ft. July 2, 1922." J. F. Rock. No. 4807.

Also "Flowers pale pink lavender, 13-16,000 ft. July 2, 1922." J. F. Rock. No. 4808.

Also "Flowers pink, alpine meadow. 14,000 ft. July 13, 1922." J. F. Rock. No. 5009.

Also "Flowers purple. 14,000 ft. July 1922." J. F. Rock. No. 5465.

Also "Flowers purple, lower Mountain of Labako. 15,000 ft. June 1923." J. F. Rock. No. 9613.

"Yunnan: Mount Habashan, north of Ndaku, north of the Likiang Snow Range, Yangtze drainage basin. Flowers purplish red, in limestone gravel. July 1923." J. F. Rock. No. 9643.

"Yunnan: Mount Peimashan, Mekong-Yangtze divide, between Atuntze and Pungtzera. Flowers purple, alpine meadow. 14,000 ft. June-July 1923." J. F. Rock. No. 10,010.

6. *P. obscura*, Bonati, sp. nov.

Planta perennis multicaulis, diffusa, villosa. Caules erecti, ascendentes aut repentes, ramosissimi, ramis diffusis angularibus valde villosis praesertim in sulcis, 8-14 mm. longis. Folia radicalia caduca; caulinarum inferiora opposita, superiora quaterni-verticillata, plus minusve longe petiolata, ambitu ovali-oblonga, acuta, pinnatisecta, segmentis ovali-oblongis acutis pinnatifidis, lobulis ovalibus obtusis; petioli 5-20 mm. longi, superiores alati; limbus 20-30 mm. longus, 5-8 mm. latus; segmenta 3-5 mm. longa, 1 mm. lata. Bractee foliiformes, flores valde superantes, 15-25 mm. longae; basis late dilatata, linearis, carnosae, valde villosae; limbus foliiformis, pinnatisectus; segmenta 3-6 mm. longa, 1 mm. lata, pinnatilobulata, lobulis ovalibus obtusis. Flores sessiles in spicis terminalibus densissimis dispositi, sub bracteis absconditi. Calyx villosissimus 7-8 mm. longus, angulosus; lobi 5, quorum medianus lanceolatus acutus, integer, laterales basi membranaceae angustae, apice carnosae, dilatatae profunde cristato-dentatae; lobi omnes pilis articulatis dense confecti. Corolla rubicunda; tubus tam longus ac calyx, in exitu calicis recto angulo incurvatus; galea recta apice truncata erostris glabra; labium inferius superiore paulo longius margine omnino glabrum integrum; lobus medius basi stragulatus, suborbicularis; lobi laterales breviores late ovati. Stamina filamenta omnia glabra, loculamentis antherarum apiculatis. Stylus filiformis inclusus; stigma globulosum vix distinctum. Capsella et semina . . .

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. 12-14,000 ft. Flowers pink. June 1922." J. F. Rock. No. 4480.

Plante voisine du *P. densispica*, Franch. dont elle diffère par la forme des feuilles et des bractées, par la lèvre inférieure de la corolle complètement glabre, par les filets staminaux tous glabres, etc.

7. *P. Magnini*, Bonati, sp. nov.

Planta perennis pluricaulis. Radix? Caules numerosi, erecti aut ascendentes, simplices, quadrangulares, villosi, 8-10 cm. longi, praesertim in sulcis valde villosi. Folia radicalia villosa, cum petiolis alatis 10-12 mm. longis basi semiamplexicaulibus; limbus circiter 15 mm. longus, 4-5 mm. latus, pinnatisectus, segmentis 6-8 paribus pinnatifidis, lobulis acutis et in margine albidis; folia caulinarum subsessilia deinde sessilia, terni-verticillata, 8-20 mm. longa. Bractee foliiformes exaequantes aut parum calycem superantes. Flores numerosi, subsessiles, apice ramorum glomerati, verticillis dense congestis spicas terminales simulantibus. Calyx membranaceus, translucidus, 5-6 mm. longus, 10-nervatus, in margine et in nervis pilis longis articulatis ciliatus; lobi 5 subaequales, medianus brevior et acutior quam laterales, omnes lanceolati, acuti, acutilobulati lobulis

carnosis; tubus 5 mm. circiter longus, lobi 1-2 mm. longi. Corolla purpurea; tubus incurvatus in exitu calycis illoque bis major, glaber, circiter 7 mm. longus; galea erostrata, ad basim recta, dorso rotunda, glabra; labium inferius adaequans aut parum calycem superans, margine ciliatum, basi cordiforme; lobi laterales angulosi, trapeziformes, lobus medianus lanceolatus obtusus, minimus, 2-3 mm. longus, basi strangulatus. Stamina inserta circa corollae tubi apicem, filamentis subaequalibus, quorum duo apice leviter ciliata. Stylus filiformis parum villosus; stigma clavatum. Capsella glabra apiculata calycem vix superans. Semina atra 1-1.5 mm. longa, glabra, prismatica, apice apiculata, longitudinaliter striata et obscure alveolata.

"Yunnan: Between Lashipa and Nguluke. Alt. 8,500 ft. High plateau between Talifu and Likiang to the foot of the Likiang Snow Range. Flowers purple. May 1922." J. F. Rock. No. 3307.

8. *P. densispica*, Franch.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Flowers purple, dry plain. May 18, 1922." J. F. Rock. No. 3646.

Also "Flowers pink. June 28, 1922." J. F. Rock. No. 4760.

8^{bis}. var. *Schneideri*, Bonati

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range, Sha Pai Loku. 12,000 ft. Flowers pink. June 15, 1922." J. F. Rock. No. 4502.

Also "Stream bed. 9,000 ft. Flowers pink. July 5, 1922." J. F. Rock. No. 4898.

Also "Flowers pink; alpine meadow. 14,000 ft. July 8, 1922." J. F. Rock. No. 4961.

Also "Flowers pink; alpine meadow. 13,500 ft. July 8, 1922." J. F. Rock. No. 4980.

Also "Alpine meadow. 17,000 ft. Flowers pale rose, spike whitish, hairy. Aug. 11, 1922." J. F. Rock. No. 5718.

B. Série *Salviaeflorae*.

9. *P. salviaeflora*, Franch.

"Yunnan: Near Nguluke. 11,000 ft. Herb 3-4 ft. high. Flowers purple. Aug. 11, 1922." J. F. Rock. No. 5754.

Section III. *Bidentatae Alternifoliae*.

A. Série *Striatae*.

10. *P. hirtella*, Franch.

"Yunnan: Western slope of Likiang Snow Range, Yangtze watershed, Haraku and Gau Hai Tze. 11,000 ft. Flowers cream-color. April 1923." J. F. Rock. No. 10877.

B. Série *Sudeticae*, Maxim.II. *P. habachanensis*, Bonati, sp. nov.

Planta statura parva, pluricaulis, villosa, perennis, radicum fibris crassis elongatis. Caules erecti, simplices, angulares, praesertim in sulcis villosi, 35–70 mm. longi sparsim foliati. Folia radicalia numerosa, longe petiolata, lineari-oblonga, pinnatisecta, segmentis 8–10 paribus deltoideis, basi latissimis, pinnatilobulatis, lobulis ovoideis obtusis acutidentatis; petioli carnosiusculi, angulosi, glabri, 25–40 mm. longi. Limbus 30–40 mm. longus, circiter 10 mm. latus; segmenta 5 mm. longa, 3–4 mm. lata; folia caulinarum alterna, haud numerosa, similia foliis radicalibus sed breviter petiolata. Bractae inferiores foliiformes, basi dilatatae; superiores trifidae, floribus breviores. Flores sessiles, in spicis terminalibus valde densis multifloris ordinati. Calyx 10–12 mm. longus, angulosus; lobi 5 aequales, lanceolati, basi stragulati, omnes acutilobulati ac in marginibus ciliati. Corolla purpurea, 20–25 mm. longa; tubus cylindricus glaber, 10 mm. longus, rectus; galea glabra, tenuiter curvata, dorso rotunda, apice truncata, erostis, in utroque latere marginis dente obtuso praedita; labium inferius superius brevius, trilobatum; lobus medius parvus, laterales non superans, circa 2 mm. longus, 2 mm. latus, ovalis, obtusus, in marginibus ciliatus; lobi laterales multo majores, ovali-obtusiusculi, margine glabri. Stamina circa tertiam inferiorem partem corollae tubi inserta; 2 filamenta apice dense villosa. Stylus filiformis; stigma parum distinctum globulosum. Capsella et semina

"Yunnan: Mount Habashan, north of Ndaku, north of the Likang Snow Range, Yangtze drainage basin. 14,000 ft. Flowers reddish-purple. July 1923." J. F. Rock. No. 9683.

Plante ayant l'aspect et certains caractères de *P. cernua*, Bonati, mais feuilles toutes radicales, caulinaires et supérieures alternées, corolle pourpre, etc.

Section IV. *Bidentatae Verticillatae*.A. Série *Superbae*.12. *P. rex*, Clarke

"Yunnan: Yangtze watershed, Prefectural District of Likang, eastern slopes of Likang Snow Range. Flowers yellow; in bed of streams. 9,000 ft. July 5, 1922." J. F. Rock. No. 4887.

Also "Na Cho, above the Mahoang Patze. Stem and leaves purplish; flowers yellow. 13,500 ft. Aug. 19, 1922." J. F. Rock. No. 5948.

12^{bis}. var. *parva*, Bonati. Plus petit dans toutes ses parties que le type; calice à 5 dents deltoïdes; les 3 lobes de la lèvre inférieure ciliés.

"Yunnan: South of Nguluko. 9,000 ft. Flowers yellow. July 23, 1923." J. F. Rock. No. 9470.

13. *P. mahoangensis*, Bonati, sp. nov.

Planta annua aut biennis, unicaulis, glabrescens. Caulis 40–60 cm. altus, glaber, fistulosus, anguste alatus, plus minusve ramosus, ramis erectis. Folia quaterni-verticillata, longe petiolata; petioli basi dilatati et vaginis membranaceis 25–30 mm. longis omnino glabris cohaerentes, 30–50 mm. longi, alati; limbus ovali-oblongus, 30–70 mm. longus, pinnatisectus segmentis 10–12 paribus pinnatifidis ovali-oblongis acutidentatis, inferioribus et superioribus quam segmenta mediana multo brevioribus. Bractee foliiformes. Flores quaterni vagina inclusi sessiles. Calyx glaber, parvus, circa 10 mm. longus, membranaceus, profunde fissus in lobos duos late ovali-obtusos 3–4 mm. longos quorum unus trialatus, alter bialatus; alae angustae dorso obtuso. Corolla flava, maxima, 40 mm. longa vel amplior; tubus basi glaber, apice villosus, circa 20 mm. longus; galea erecta, dorso curvato villosissimo, erostrata, apice truncata et in utraque parte dente filiformi munita, margine glabra; labium inferius superiore brevius margine integrum et ciliatum; lobus medius parvus, 2 mm. longus, sessilis, ovali-obtusos sed apice 3–4 mm. lato apiculatus, lobos laterales late ovaes suborbiculares superans; cristae duae in margine longitudinales. Stamina omnia ad basim inserta; filamenta ad apicem dense villosa; antherarum loculi oblongi obtusi. Stylus filiformis inclusus; stigma globulosum parum distinctum. Capsella et semina

“Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range; above Mahoang Patze. 12–14,000 ft. Stem shiny yellow; flowers yellow. June 24, 1922.” J. F. Rock. No. 4680.

Plante appartenant à la série Superbae et à la fraction de cette série ayant des corolles du type “bidentata.” Son plus proche parent est le *P. rex*, Clarke, mais elle s'éloigne de ce dernier par la forme du calice à lobes non dentés, par la grande taille de la corolle, par la lèvre inférieure à lobes tous ciliés sur les bords, par la casque densément velu sur le dos, ainsi d'ailleurs que la face externe du sommet du tube de la corolle.

14. *P. Rockii*, Bonati, sp. nov.

Planta glabrescens, verisimiliter annua, recte radicata. Caules simplices, 30–60 cm. alti, erecti, rigidi, quadrangulares, anguste alati. Folia inferiora caduca, superiora quaterni-verticillata, sessilia, basi dilatata et vagina ampliata cohaerentia, bipinnatifida lobulis acutidentatis, 30–60 mm. longa, 10–20 mm. lata, segmenta 10–12 ex utraque parte. Bractee similes foliis, circa 40 mm. longae, 4–6 mm. latae. Flores axillares, apice caulis singulares, vel per 4 glomerati in vaginis foliorum, sessiles. Calyx membranaceus, translucidus, circa 5 mm. longus, in parte anteriore in lobos duos ovali-rotundos apice

breviter tridentatos fissus. Corolla flava, brevis, 12-15 mm. longa; tubus latus, cylindricus vix calycem superans, circa 5 mm. longus, apice incurvatus, extra intraque glaber; galea latissima, angulo recto incurvata, vertice villosa, margine glabra; lobus medianus breviter pedicellatus; lobi laterales sessiles, anguste ovali-obtusi. Stamina filamenta omnia apice villosa. Stylus linearis subfiliformis; stigma vix distinctum, in summo fimbriatum. Capsella et semina

"Yunnan: Mountains south of Likiang, near Hochin and Chiuho. Flowers yellow. May 25-28, 1922." J. F. Rock. No. 4050.

"Yunnan: Yangtze drainage basin, north of Shiku and east of Weihsi, near Beifeng Chiang, bamboo forests. Oct. 1923." J. F. Rock. No. 11533.

Le *P. Rockii* appartient à la série *Superbae*. Il a l'aspect général du *P. rex*, Clarke et des diverses variétés de cette espèce, mais la corolle est du type *anodonta*.

L'on connaissait jusqu'alors dans la série *Superbae*:

1°—le type *Orthoryncha* avec le *P. cyathophylla*, Franch. et peut être le *P. cyathophylloides*, Limpr. que je ne connais pas.

2°—le type *Hyporthoryncha* avec le *P. superba*, Franch.

3°—le type *Bidentata verticillata* avec le *P. rex*, Clarke, sa variété *pseudocyathus*, Vaniot, et le *P. Lipskyana*, Bonati.

Comme je le faisais remarquer dans mon étude "Le Genre Pédicularis," 1918, un seul anneau manquait dans la chaîne, l'anneau initial, le type "anodonta verticillata." Je disais alors, page 159 "Un seul anneau manque à la chaîne, c'est celui représenté par le type des *Anodontae verticillatae*; mais si jusqu'alors nous ne le connaissons pas, il est cependant permis de supposer, je dirai même d'affirmer, qu'il existe ou qu'il a existé." M. J. F. Rock a comblé cette lacune, en découvrant au Yunnan la plante que je lui dédie. Et ceci tend à confirmer l'hypothèse que j'émettais en 1918, c'est-à-dire que les *Alternifoliae* et les *Verticillatae* ont évolué indépendamment, mais parallèlement en passant par les mêmes étapes.

L'ensemble de la série des *Superbae*, abstraction faite du *P. cyathophylloides*, Limpr. pourra donc s'exposer comme suit:

A. Corolle munie d'un bec; fleurs pourpres.

a. Tube de la corolle cylindrique, très allongé, très étroit, bec long
- - - - - 1. *P. cyathophylla*, Franch.

b. Tube de la corolle court et élargi au sommet; bec court; corolle
pourpre - - - - - 2. *P. superba*, Franch.

B. Corolle sans bec.

a. Casque à 2 dents.

+ Corolle pourpre ; lèvre inférieure à marge ciliée ; 2 filets staminaux velus ; pétioles des bractées ciliés sur les bords -

- - - - - 3. *P. Lipskyana*, Bonati

+ + Corolle jaune ; tous les filets staminaux velus.

†Casque glabre ou glabrescent ; lobes du calice 2 à 2 et 3 lobes ; lobe médian de la lèvre inférieure seul velu ; tube de la corolle glabre - - - - 4. *P. rex*, Clarke

††Casque très velu sur le dos ; lobes du calice entiers ; les 3 lobes de la lèvre inférieure velus ; tube de la corolle velu - - - - 5. *P. mahoangensis*, Bonati

b. Casque sans dents.

+ Corolle rouge ; filets des étamines glabres - - - -

- - - - - 6. *P. cyathophylloides*, Limpr.

+ + Corolle jaune ; filets staminaux tous velus - 7. *P. Rockii*, Bonati

15. *P. superba*, Franch.

"Yunnan : Yangtze watershed, Prefectural District of Likang, eastern slopes of Likang Snow Range. Flowers purple ; alpine meadow. 15,000 ft. July 13, 1922." J. F. Rock. No. 5023.

Also "Peshwe River. 16,000 ft. Flowers pinkish-purple. Aug. 1, 1922." J. F. Rock. No. 5287.

Also "Ashi road. Flowers purple. May 30, June 6, 1922." J. F. Rock. No. 5397.

Also "Flowers bluish-red, very showy ; alpine meadow. 12,500-13,000 ft. Aug. 13, 1922." J. F. Rock. No. 5804.

Also "Na Cho, above the Mahoang Patze. Flowers purplish-red. 14,000 ft. Aug. 19, 1922." J. F. Rock. No. 5949.

Also "Flowers purplish-red. 12,500-13,000 ft. July 1923." J. F. Rock. No. 9455.

Also "Nadchua Shi Luphu Chua, limestones gravel. 12,500 ft. Aug. 14, 1923." J. F. Rock. No. 9917.

B. Série *Rigidæ*.16. *P. comptoniaefolia*, Franch.

"Szechuan, between Likang, Youngning, and Youngpei, en route to Mili, south-western Szechuan. Flowers purple. Tsa Sec Pe. July 1922." J. F. Rock. No. 5310.

"Yunnan : Yangtze watershed, western slopes of Likang Snow Range, Gau Hai Tze. 10,000 ft. Flowers purple. July 1922." J. F. Rock. No. 5339.

Also "Sa ba. 11,000 ft., in open scrub. Flowers purple. May-Oct. 1922." J. F. Rock. No. 5663.

17. *P. rigida*, Franch.

"Yunnan: Between Likiang and Talifu, between Nau-Kao-Chai and Tien Wei. Flowers pinkish-purple. September 13-18, 1922." J. F. Rock. No. 6546.

C. Série *Melampyriflorae*.

18. *P. pseudomelampyriflora*, Bonati (= *P. elegans*, Franch.)

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range, Nguluke. 12,000 ft., along brooks; 5-6 ft. high; much branched, often from the base. Flowers pink. Aug. 11, 1922." J. F. Rock. No. 5771.

D. Série *Lyratae*.

19. *P. lutescens*, Franch., var. *ramosa*, Bonati

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Flowers bright yellow. 12-16,000 ft. Aug. 10, 1922." J. F. Rock. No. 5700.

"Yunnan: Mount Habashan, north of Ndaku, north of the Likiang Snow Range, Yangtze drainage basin. 14,000 ft. Flowers pale yellow. July 1923. J. F. Rock. No. 9645.

"Yunnan: Eastern slopes of Mount Dyinaloko, northern peak of the Likiang Snow Range. Abies forest. 12,500-13,000 ft. Flowers lemon yellow. Aug. 13, 1923." J. F. Rock. No. 10431.

19^{bis}. var. *brevifolia*, Bonati

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. 12,500-13,000 ft. Flowers lemon yellow. August 13, 1922." J. F. Rock. No. 5810.

20. *P. Truchetii*, Bonati, sp. nov.

Planta quae videtur perennis, villosa. Caulis erectus, rigidus, 15-20 cm. altus, vix ramosus, cylindricus, villosissimus. Folia carnosa terni-verticillata, sessilia, anguste linearia, obtusa, pinnati-lobata, foliolis 10-12 paribus ovalibus obtusis, 20-25 mm. longis, 5-6 mm. latis. Bracteae inferiores basi dilatatae membranaceae latissimae, supra foliiformes circa 20 mm. longae; bracteae superiores deltoideae, membranaceae margine crenulatae. Flores sessiles in spicis terminalibus multifloris ordinati. Calyx 5-8 mm. longus, dentibus 5, ex quibus summus lanceolatus, acutus, integer, laterales oblongi, obtusi, basi non contracti, margine crenulati. Corolla flava, circa 25 mm. longa; tubus cylindricus glaber, calyce longior, 12-14 mm. longus, rectus; galea erecta, apice paulo incurvata, obtusa, glabra, margine dentibus 4-5 ex utraque parte instructa; labium inferius erectum, tam longum ac superius vel parum brevius; lobus medianus lateralibus paulo longior, basi vix strangulatus, laterales basi lati, omnes ovals rotundati, emarginati, glabri, marginibus denticulati. Stamina circa tertiam partem inferiorem corollae inserta; filamenta omnia glabra. Stylus filiformis; stigma claviforme. Capsella et semina

"Yunnan: Na Cho, above the Mahoang Patzé; Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. 16,000 ft. Flowers yellow. Aug. 19, 1922." J. F. Rock. No. 5913.

Plante très voisine du *P. lutescens*, Franch., dont elle diffère par la forme de ses feuilles, de ses bractées, et aussi par celle de la lèvre inférieure de la corolle.

Section V. *Rhyncholophae Alternifoliae*.

A. Série *Tristes*.

21. *P. dolichocymba*, Hand.-Mzt.

"Yunnan: Between Likiang, Tungshan, Tuinaoko, and Tsili-kiang, dry Yangtze drainage basin. Flowers blackish-purple. Leaves deep purplish-black when fresh. 14,500 ft. May 1923." J. F. Rock. No. 9763.

22. *P. macrocalyx*, Bonati, sp. nov.

Planta perennis *P. Prainianae*, Maxim. affinis. Caules erecti, simplices, angulosi, in sulcis pilis albidis tecti, ceterum glabri, 31-40 cm. alti. Folia numerosa, glabra, sessilia et semiamplexicaulia, lineari-oblonga, pinnatilobata, lobis 15-20 paribus ovatis obtusis acutidentatis 30-50 mm. longis 10-15 mm. latis. Bractee foliis similes, sed basi dilatatae, floribus longiores. Flores in axilla foliorum superiorum et bractearum singulares, sessiles. Calyx membranaceus, glaber, vesiculosus, 15 mm. longus, 12-15 mm. latus, lobis 5 brevibus 2-3 mm. longis, subaequalibus margine ciliatis, mediano late deltoideo integro, lateralibus lanceolatis acutis vix dentatis. Corolla purpurea 25-30 mm. longa; tubus glaber cylindricus, calycem non superans; galea navicularis, margine dorsoque villosa, 15 mm. longa, 6 mm. lata; labium inferius 10 mm. longum, lobis tribus 5 mm. longis subaequalibus quorum medianus ovali-oblongus, obtusus, apice rotundus, laterales vertice attenuati, omnes pilis articulatis ciliati. Filamenta omnia glabra, prope summum tubi corollae inserta. Stylus filiformis glaber corollam longe superans; stigma vix distinctum bilobatum. Capsella glabra, ovoidea apiculata, calycem aequans. Semina ovoidea glabra, lateraliter paulo compressa, tenuiter reticulata, circ. 3 mm. lata.

"Yunnan: Eastern slopes of Mount Dyinaloko, northern peak of the Likiang Snow Range. 13,500 ft. Flowers purple, in *Abies* forest. Aug. 1923." J. F. Rock. No. 10420.

Diffère du *P. Prainiana* dont il est très voisin :

- 1° par la corolle pourpre et non jaune ;
- 2° par l'inflorescence très interrompue ;
- 3° par la corolle plus grande, 25-30 mm. au lieu de 20-22 mm., et à tube glabre ; etc.

23. *P. aequibarbis*, Hand.-Mzt.

"Yunnan: Yangtze watershed, western slopes of Likiang Snow Range. Gau-Hai-Tze. Flowers yellow. May 30-June 6, 1922." J. F. Rock. No. 4575.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. 12-13,000 ft. Flowers sulfur-yellow. May-October 1922." J. F. Rock. No. 4859.

Also "Sa-Ba. 11,000 ft. Flowers yellow. Fruit viscous. May-October, 1922." J. F. Rock. No. 5652.

"Yunnan: Between the Chungtien River and the Yangtze, north-west of the Likiang Snow Range. 10,000 ft. Flowers yellow, reddish tinged. Between Chiao-Tou and Chungtien. July 1923." J. F. Rock. No. 9799.

24. *P. rhodotricha*, Maxim.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Peshwe River, among rocks. Flowers purple. Aug. 1, 1922." J. F. Rock. No. 5272.

25. *P. trichoglossa*, Hook. f.

"Yunnan: Mount Shwe men Kau, between the Chungtien River and the Yangtze, north-west of the Likiang Snow Range. 11,000 ft. Flowers purple. July 1923." J. F. Rock. No. 9738.

"Yunnan: Mountains of Moting, north-east of the Yangtze-Mekong watershed. Flowers deep purple. June 1923." J. F. Rock. No. 10344.

26. *P. pseudo-Steiningeri*, Bonati, sp. nov.

Planta probabiliter perennis, unicaulis, sparsim villosa. Caules simplices erecti vel ascendentes, angulosi, pilis albis in sulcis instructi, valde foliati, 30-40 cm. alti. Folia glabra, alterna, sessilia, semi-amplexicaulia, lanceolato-linearata, obtusa, pinnati-lobata; lobi 20-25 ex utroque latere, apice truncati, acuti-dentati; limbus 40-50 mm. longus, 3-5 mm. latus; lobi 1 mm. longi, 1 mm. lati. Bractee foliiformes sed margine villosae, dilatatae, semi-amplexicaules, basi auriculatae, calyce longiores. Flores sessiles, in spicis terminalibus multifloris basi plus minusve interruptis 10-15 cm. longis dispositi. Calyx ovoides, vesiculosus, angulosus, glabrescens marginibus loborum exceptis, 12-15 mm. longus, profunde quinti-lobatus; lobi subaequales lanceolati acuti, pilis articulatis margine ciliati, integri, 4-6 mm. longi. Corolla purpurea, magna, 30 mm. longa; tubus latus, cylindricus, glaber, rectus, circiter 10 mm. longus; galea falcata, dorso rotundata, glabra, ecristata, in rostrum cylindricum subito contracta, 2 mm. longa, saepe oblique truncata; margo inferior medio dilatata,

flocco pilorum albidorum pluricellularium praedita; labium inferius lobos tres subaequales lanceolatos acutos circiter 4 mm. longos emarginatos glabros margine denticulatos exhibens. Stamina breviora filamentis glabris; staminum longiorum filamenta pilis articulatis pluricellularibus maculis nigrescentibus in commissuris ornatis apice dense tecta; antherae ovoideae, basi rotundatae, apice attenuatae et apiculatae. Stylus filiformis, inclusus, glaber; stigma globulosum vix distinctum. Capsella et semina

"Szechuan: Muli or Mili Kingdom, south-western Szechuan. Flowers purple. 10-14,000 ft. June 1922." J. F. Rock. No. 5560.

Diffère de *P. Steiningeri*, Bonati:

- 1° par la taille plus faible;
- 2° par la lèvre inférieure beaucoup plus courte que casque;
- 3° par la forme de la marge du casque; et n'est peut-être qu'une variété locale de taille plus réduite de cette espèce.

27. *P. recurva*, Maxim., var. *polyantha*, Bonati

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. 15,000 ft. Flowers purplish-blue; alpine meadow. July 13, 1922." J. F. Rock. No. 5011.

"Yunnan: Mount Habashan, north of Ndaku, north of the Likiang Snow Range, Yangtze drainage basin. Flowers purplish-red. 12,000 ft. July 1923." J. F. Rock. No. 9653.

"Yunnan: Eastern slopes of Likiang Snow Range, Yangtze watershed. 13,000 ft.; Nadchua Shi Luphu Chua. Flowers purplish. Aug. 14, 1923." J. F. Rock. No. 9915.

28. *P. lachnoglossa*, Hook. f., var. *macrantha*, Bonati

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Flowers purple. May 26, 1922." J. F. Rock. No. 3940.

Also "Near Pei Shan. 12,000 ft. June 12, 1922." J. F. Rock. No. 4427.

Also "Sha Pâ Loku, limestone meadow. Flowers pinkish-purple. June 15, 1922." J. F. Rock. No. 4495.

Also "Sa-Ba. 11,000 ft. Flowers purple. May-October 1922." J. F. Rock. No. 5650.

Also "Saba, limestone meadow. Aug. 30, 1922." J. F. Rock. No. 6155.

B. Série *Subsurrectae*.

29. *P. Viali*, Franch.

"Yunnan: Eastern slopes of Mount Dyinaloko, northern peak of the Likiang Snow Range, Yukolo. 13,000 ft. Abies forest. Flowers purplish. Aug. 1923." J. F. Rock. No. 10430.

C. Série *Paucifoliae*.

30. *P. filicula*, Franch.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Ho-Shan-Yi-Koo, 12-13,000 ft. Flowers deep rose purple. May 20, 1922." J. F. Rock. No. 3758.

Also "Mount Tsa-Koo-Shan. Flowers purple. 12,000 ft. May 1922." J. F. Rock. No. 3972.

Also "Stems and flowers purple; leaves dark green. 12-13,000 ft. June 11, 1922." J. F. Rock. No. 4366.

Also "Above Mahoang Patze. 12-14,000 ft. Flowers deep red purple. June 24, 1922." J. F. Rock. No. 4667.

Also "Flowers purple-pink. 15,000 ft. July 10, 1922." J. F. Rock. No. 4992.

Also "Flowers purple; alpine meadow. 14,500 ft. July 13, 1922." J. F. Rock. No. 5010.

Also "Flowers purplish-red. 15,000 ft. June 13, 1923." J. F. Rock. No. 8655.

"Yunnan: Eastern slopes of Mount Dyinaloko, northern peak of the Likiang Snow Range. Flowers purple. June 1923." J. F. Rock. No. 9024.

31. *P. Forrestiana*, Bonati

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range, near Lu Kgo. 13,000 ft. Leaves dark green above, purple beneath; flowers pink. June 27, 1922." J. F. Rock. No. 4745.

Also "Among rocks. 12-13,000 ft. Flowers rich pink. May-October 1922." J. F. Rock. No. 4864.

D. Série *Carnosae*.

32. *P. crenata*, Maxim., var. *crenatiformis*, Bonati, var. nov.

Planta nana, non ramosa, villosissima. Caules simplices, cylindrici, erecti, valde foliati, 12-14 cm. alti. Folia carnosae, sessilia, basi cuneata vel subcordata, ovali-oblonga, obtusa, 20 mm. longa, 7-8 mm. lata, profunde crenulata, dentibus obtusis acutidenticulatis. Bractaeae foliiformes, valde villosae, calyce longiores. Flores ad apicem caulium glomerati, haud numerosi, sessiles. Calyx cylindricus, hirsutus, ad apicem in parte anteriore fissus, membranaceus, lobis duobus aequalibus basi strangulatis ovali-obtusis lobulatis margine denticulatis. Corolla purpurea; tubus glaber cylindricus, vix apice patulus, adaequans aut parum calycem superans; galea glabra, dorso rotunda, 10 mm. longa, cujus pars verticalis erecta, 5 mm. longa, ad medium

recto angulo incurvata, in rostrum cylindricum 1 mm. latum 3 mm. longum subito contracta; labium inferius superiore brevius lobis tribus subaequalibus late ovali-rotundatis integris margine omnino glabris. Stamina ad basim corollae inserta, filamentis filiformibus quorum 2 apice villosa, alia omnino glabra. Stylus filiformis glaber vix galeam superans; stigma parum distinctum bilobatum. Ovarium glabrum. Capsella et semina Hujus plantae varietas quaedam floribus albis galeaque purpurea gaudet.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range, Nguluke, open meadow. Flowers pink. Aug. 1922." J. F. Rock. No. 5875.

"Yunnan: Between Likiang and Tali-fu, Lung-Kwei Road. Flowers white with purplish tip. Aug. 1922." J. F. Rock. No. 6318.

"Yunnan: Eastern slopes of Likiang Snow Range, Chu-Hyin-Ko, near Nguluke. Flowers purple, among limestone rocks. Alt. 10,000 ft. Sept. 1923." J. F. Rock. No. 10625.

Plante très voisine du *P. crenata*, Maxim. Elle diffère de cette espèce par la forme des feuilles et du calice, par le bec brusquement contracté, par la marge de la corolle glabre, par le calice à 2 dents, etc.

E. Série *Microphyllae*.

33. *P. lunglingensis*, Bonati, sp. nov.

Planta hirsuta, erecta vel ascendens, perennis, recte radicata; radix ramosa ramis valde prolatis juxta insertionem saepe inflatis. Caules simplices aut saepius plus minusve ramosi, ramis explicatis, basi cylindrici, apice angulosi, 10–15 cm. longi; rami 5–7 cm. longi. Folia carnosae, alterna, breviter petiolata, ovali-oblonga, obtusa, basi attenuata, profunde crenulata lobis ovali-rotundis denticulatis; petioli angulosi, anguste alati, 5–7 mm. longi; limbus 20–30 mm. longus, 6–15 mm. latus. Bractee foliiformes, sessiles, calyce longiores. Flores sessiles, solitarii in axillis foliorum superiorum et bractearum et ad apicem caulis et ramorum in cymis paucifloris dispositi. Calyx cylindricus, 10–12 mm. longus, villosissimus, in lobos duos aequales basi strangulatos ovatos acutos profunde cristatodentatos circ. 3 mm. longos fissus. Corolla purpurea, 35–40 mm. longa, calyce multo longior; tubus 20 mm. longus, cylindricus, glaber, rectus, tenuiter longitudinaliter venosus; labium superius tam longum ac tubus; pars inferior tubi cylindrica erecta; galea glabra, circa 10 mm. longa, margine inferiore integra, dorso rotundato, in rostrum brevissimum 1 mm. longum apice truncatum attenuata; labium inferius galeam vix superans lobis subaequalibus ovali-obtusis quorum medianus apice denticulatus lateralibus parum longior. Stamina ad basim tubi corollae inserta; filamenta omnia sparsim villosa; antherarum loculi ovoideo-oblongi, apice truncati basique subacuti. Stylus glaber; stigma globulosum. Capsella et semina

"Yunnan: Between Camp Yu-Tan-Po and Mau-Lo, between Tengyueh and Lungling. Flowers pink, in damp forest. Oct. 1922." J. F. Rock. No. 7126.

Plante appartenant à la série *Microphyllae*, dans laquelle elle se distingue par ses fleurs très grandes et rouges. La série des *Microphyllae*, comprenait (Bonati, 1910) 4 espèces, c'est-à-dire les : *P. flagellaris*, Benth.; *P. Labordei*, Vaniot; *P. Henryi*, Maxim.; *P. tenuisecta*, Franch.

M. Limpricht, Studien über die Gattung *Pedicularis*, a ajouté à cette liste les :

P. Bodinieri, Vaniot, et *P. veronicaefolia*, Franch.

Le *P. Bodinieri*, Vaniot, n'est que le *P. Henryi*, Maxim. et je l'avais admis comme espèce à une époque (1907) où le genre *Pedicularis* était pour moi beaucoup plus mystérieux qu'aujourd'hui. Quant au *P. veronicaefolia*, Franch., je maintiens mon opinion de 1910 et je le classe dans les *Carnosae*.

J'ai par contre 2 espèces à ajouter à la série, ce sont : le *P. Evrardi*, Bonati, de l'Annam, et le *P. lunglingensis*, Bonati, du Yunnan, que je viens de décrire. L'ensemble de la série pourra se résumer comme suit :

Série *Microphyllae*.

A. Corolle à tube droit.

a. Casque à dos arrondi. Casque insensiblement atténué en bec court et bifide ou émarginé.

* Lobes inférieurs des feuilles longuement pétiolulés - - - 1. *P. flagellaris*, Benth.

** Lobes inférieurs des feuilles sessiles.

† Filets staminaux glabres; corolle longue de 20-25 mm.; casque en forme d'hameçon, brusquement contracté, en bec long de 1 mm.; lobes du calice obtus - - -

- - - - - 2. *P. Evrardi*, Bonati

†† Filets staminaux tous plus ou moins velus; corolle longue de 35-40 mm.; lobes du calice égaux, aigus, étranglés à la base et profondément dentés en forme de crête -

- - - - - 3. *P. lunglingensis*, Bonati

b. Casque 2 fois coudé et brusquement contracté en un bec filiforme, droit, émarginé, mais non bifide; tous les filets staminaux velus - - - - - 4. *P. Labordei*, Vaniot

B. Corolle à tube coudé.

a. Casque terminé en bec court; lèvres glabres, feuilles entières - - - - - 5. *P. Henryi*, Maxim.

b. Casque tronqué, sans bec, lèvres inférieure ciliée sur les bords; feuilles pinnatiséquées - - - - - 6. *P. tenuisecta*, Franch.

34. *P. tenuisecta*, Franch.

"Yunnan: Between Likiang, Youngning and Youngpei, en route to Mili (south-western Szechuan); Yotzo Lo, near Szutchuan. Flowers purple. July 1922." J. F. Rock. No. 5323.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range; Sa-Ba. 11,000 ft.; pine forest. May–October 1922." J. F. Rock. No. 5662.

Also "Gau Hai Tze. 11–12,000 ft. Flowers blackish-purple. Aug. 16, 1922." J. F. Rock. No. 5846.

Section VI. *Rhyncholophae Verticillatae*.A. Série *Longicaules*.34^{bis}. *P. longicaulis*, Franch.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. 12–16,000 ft., 3–4 ft. high. Flowers pinkish-purple. Aug. 10, 1922." J. F. Rock. No. 5690.

Section VII. *Longiostres Alternifoliae*.A. Série *Polyphyllae*.35. *P. gruina*, Franch.

"Yunnan: Eastern slopes of Likiang Snow Range, Yangtze watershed, near Lamassu. 11,600 ft. Flowers rich deep purple. Sept. 1923." J. F. Rock. No. 10662.

36. *P. polyphylloides*, Bonati

"Yunnan: Between Likiang, Youngning and Youngpei, en route to Mili (south-western Szechuan); Lotzo Lo, near Szutchuan. Flowers pink. July 1922." J. F. Rock. No. 5306.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Flowers rose-pink and purple, near Nguluke. 11,500 ft. Aug. 11, 1922." J. F. Rock. No. 5737.

B. Série *Oliganthae*.37. *P. cephalantha*, Franch.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Flowers rich rose-red. 13–16,000 ft. July 2, 1922." J. F. Rock. No. 4822.

Also "Flowers rich rose-red. 14–14,500 ft. July 8, 1922." J. F. Rock. No. 4972.

"Szechuan: Muli or Mili Kingdom, south-western Szechuan. Flowers purple. 10–14,000 ft. June 1922." J. F. Rock. No. 5551.

38. *P. longepetiolata*, Franch.

"Yunnan: Between Likiang, Youngning and Youngpei, en route to Mili (south-western Szechuan). Flowers purple. 10-12,000 ft. May-June 1922." J. F. Rock. No. 5202.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range; swampy meadow. 10,000 ft. Flowers purple. Aug. 5, 1922." J. F. Rock. No. 5605.

Also "Gau Hai Tze. 11-12,000 ft. Flowers purple. Aug. 16, 1922." J. F. Rock. No. 5868.

Also "Swampy meadows, Chu-Hyin-Ko, near Nguluke. 10,000 ft. Sept. 1923. Flowers purple." J. F. Rock. No. 10624.

C. Série *Oxycarpæ*.39. *P. oxycarpa*, Franch.

"Yunnan: Yangtze watershed, western slopes of Likiang Snow Range, Gau Hai Tze, boggy meadows. Flowers creamy-white, keel purple. 10-11,000 ft. May 30-June 6, 1922." J. F. Rock. No. 4145.

Also "Peshwe. 10,500-10,800 ft. Flowers white, keel purple. May-October 1922." J. F. Rock. No. 4554.

"Yunnan: Between Likiang, Youngning and Youngpei, en route to Mili (south-western Szechuan). 10-12,000 ft. Flowers white with purple keel. May-June 1922." J. F. Rock. No. 5168.

"Yunnan: Eastern slopes of Likiang Snow Range, Yangtze watershed, alpine meadow. 13,000 ft. Plant 1 foot high. Flowers purplish-red. 1923-24." J. F. Rock. No. 11442.

D. Série *Siphonanthæ*.40. *P. Delavayi*, Franch.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Alt. 13-14,000 ft. Flowers rich purple. May-October 1922." J. F. Rock. No. 4641.

Also "Flowers purple. 14,000 ft. July 1922." J. F. Rock. No. 5466.

Also "Flowers rich purple. 14,000 ft. July 1923." J. F. Rock. No. 9441.

Also "Flowers purple. 15,000 ft. Aug. 1923." J. F. Rock. No. 9885.

41. *P. longiflora*, Rudolph

"Yunnan: Mount Peimashan, Mekong-Yangtze divide between Atuntze and Pungtzera; alpine meadow. 14,500 ft. Flowers yellow. July 1923." J. F. Rock. No. 10006.

42. *P. sigmoidea*, Franch.

"Yunnan: Between Likiang and Talifu. Flowers purple, Lung Kwei Mts. August 1922." J. F. Rock. No. 6306.

43. *P. siphonantha*, D. Don

"Szechuan: Muli or Mili Kingdom (south-western Szechuan), Wah Erh Dja Snow Range. Flowers purple. June 1922." J. F. Rock. No. 6486.

"Yunnan: Eastern slopes of Likiang Snow Range, Yangtze watershed. 14,500-15,000 ft. Flowers purple. Aug. 1923." J. F. Rock. No. 9830.

Also "Nadchua Shi Lophu Chua. Flowers rich purple. 14,500 ft. Aug. 14, 1923." J. F. Rock. No. 9913.

"Yunnan: Mount Peimashan, Mekong-Yangtze divide between Atuntze and Pungtzera. 14,500 ft. Flowers purple, wet alpine meadow. June-July 1923." J. F. Rock. No. 10007.

44. *P. Elwesii*, Hook. f.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Flowers purplish-red. May-October 1922." J. F. Rock. No. 4919.

Also "Chui Cha Tze. Flowers purple. 14-16,000 ft. July 1922." J. F. Rock. No. 5440.

"Yunnan: Mount Shwe men Kau, between the Chungtien River and the Yangtze, north-west of the Likiang Snow Range. 13-14,000 ft. Flowers purple. July 1923." J. F. Rock. No. 9735.

"Yunnan: Eastern slopes of Likiang Snow Range, Yangtze watershed. 14,500-15,000 ft. Flowers purple. Aug. 1923." J. F. Rock. No. 9829.

"Yunnan: Mount Peimashan, Mekong-Yangtze divide between Atuntze and Pungtzera. 14-15,000 ft. June-July 1923." J. F. Rock. No. 10022.

Section VIII. *Longirostres Verticillatae* vel *Orthorhynchae*.A. Série *Axillares*.45. *P. axillaris*, Franch.

"Yunnan: Yangtze watershed, in the Prefectural District of Likiang, eastern slopes of Likiang Snow Range. 9-11,500 ft., semi-prostrate. Flowers purple. June 3, 1922." J. F. Rock. No. 4107.

Also "Lu Kgo. 12,000 ft. Flowers pink. June 16, 1922." J. F. Rock. No. 4515.

Also "Flowers purple, 12-13,000 ft. May-October 1922." J. F. Rock. No. 4870.

"Yunnan: Eastern slopes of Mount Dyinaloko, northern peak of the Likang Snow Range. Plant prostrate, spreading. Flowers purple. Abies forest below Yukolo. 13,000 ft. June 1923." J. F. Rock. No. 9011.

Also "Flowers pinkish-purple. 12,000 ft. July 5, 1923." J. F. Rock. No. 9054.

B. Série *Graciles*.

46. **P. gracilis**, Wall.

"Yunnan: Yangtze watershed, Prefectural District of Likang, eastern slopes of Likang Snow Range, Gau Hai Tze. 11-12,000 ft. Flowers purplish-pink; boggy meadow. Aug. 16, 1922." J. F. Rock. No. 5849.

Also "Chiu Haitze, Gubu meadow, 9-12,000 ft. Flowers purple. Aug. 1922." J. F. Rock. No. 6019.

"Yunnan: Mountains of the Yangpi River drainage basin. Flowers purple; near Talifu. August 1922." J. F. Rock. No. 6208.

C. Série *Debiles*.

47. **P. Pheulpini**, Bonati

"Yunnan: Eastern slopes of Likang Snow Range, Yangtze watershed, dry grassy slope, near Nguluke. Flowers pinkish-purple. Sept. 1923." J. F. Rock. No. 10628.

48. **P. subacaulis**, Bonati, sp. nov.

Planta quae videtur annua, debilis, villosa, recte radicata. Caules 6-11 cm. alti, simplices vel ramosi, cylindrici, basi glabri, apice molliter villosi. Folia basalia duo squamiformia ovali-oblonga flavida; folia caulina opposita longe petiolata; petioli alati 5-10 mm. longi; limbus circuitu ovali-oblongo 7-8 mm. longus, 3-4 mm. latus pinnatisectus segmentis 4-6 ovali-obtusis acuti-dentatis. Bractee calyce longiores; inferiores foliiformes, superiores basi dilatatae ibique membranaceae latissimae; limbus palmatifidus lobis profunde lobulatis, lobulis acutidentatis. Calyx villosus, membranaceus, 8-10 mm. longus; lobi 5 quorum lobus medianus lanceolatus acutus lateralibus brevior, laterales basi lati, palmati-lobulati, lobulis carnosius apice glabris membranaceis basi pilis articulatis dense ciliatis. Corollae tubus cylindricus extra sparsim villosus, calyce multo longior circ. 15 mm. longus, apice paulo dilatatus; galeae pars inferior erecta, 5-6 mm. longa, dorso rotundo et recto angulo incurvato, glabra, in rostrum lineare leviter arcuatum apice laciniatum paulatim attenuata; labium inferius rostro longius margine ciliatum trilobatum; lobus medianus brevis, basi strangulatus, in apice truncatus, circ. 4 mm.

longus, 5 mm. latus, lobi laterales multo magis evoluti, late ovales suborbiculares. Stamina circa medium tubi corollae inserta; filamenta duo apice dense villosa, alia pilis articulatis sparsim praedita. Stylus filiformis inclusus; stigma globulosum vix distinctum. Capsella et semina . . .

"Yunnan: Peshwe River, among rocks. Flowers purple. Aug. 1922." J. F. Rock. No. 5259.

"Yunnan: Eastern slopes of Likiang Snow Range, Yangtze watershed, Natchua Shi Luphu Chua. Flowers purple. 14,500 ft. July 1922." J. F. Rock. No. 5473.

Also "Flowers purple. Aug. 1923." J. F. Rock. No. 9904.

49. **P. Maxonii**, Bonati, sp. nov.

Planta verisimiliter annua, glabra nisi apud inflorescentiam, radice recta paulo ramosa. Caules basi glabri, apice villosi, erecti, valde ramosi, ramis erectis, 12-16 cm. alti. Folia opposita, sessilia, semi-amplexicaulia, viridia, in facie superiore glabra, in facie inferiore albescentia, pinnatifida lobis linearibus obtusis acutidentatis; limbus 6-8 mm. longus, 5-6 mm. latus; lobi 2 mm. longi, 1 mm. lati. Bractee deltoideae vel flabelliformes, palmati-lobatae lobis profunde lobulatis. Flores in spicis terminalibus plus minusve densis multifloris dispositi. Calyx villosus, 5-6 mm. longus, 5-dentatus; dens cacuminis brevior lanceolatus acutus; laterales profunde lobati lobis obtusis. Corolla purpurea; tubus cylindricus, glaber vel paululo villosus, circ. 10 mm. longus; pars verticalis galeae 4-6 mm. longa, erecta, dorso rotundo angulo recto incurvato, in rostrum lineare subfiliforme 8-10 mm. longum apice non dilatatum subito contracta; labium inferius tam longum ac galea, parum trilobatum, margine pilis longis articulatis ciliatum; lobus medianus ovali-obtusis, laterales longe superans, cucullatus; lobi laterales late ovali-rotundati suborbiculares. Stamina filamentis glabris ad faucem tubi corollae inserta. Stylus filiformis corollam superans; stigma parum distinctum globulosum. Capsella et semina . . .

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Flowers rich pink. Saba, limestone meadow. Aug. 30, 1922." J. F. Rock. No. 6146.

Appartient à la série Debiles et occupe dans cette série une place spéciale, grâce au lobe médian de la lèvre inférieure de la corolle cucullé.

50. **P. sabaensis**, Bonati, sp. nov.

Planta perennis villosa. Caules erecti, 12-16 cm. alti, a basi valde ramosi, ramis erectis caules aequantibus, basi quadrangulares, apice anguste alati, in sulcis villosi, sicut rami. Folia sessilia, opposita, 7-15 mm. longa, profunde pinnatifida; lobi lineares, truncati,

acutidentati, 3-4 mm. longi, 1-3 mm. lati; limbus sparsim villosus, supra viridis, infra albescens, ubi lichenibus numerosis albis indutus. Bractee flabelliformes, profunde lobatae, floribus breviores. Flores apice ramorum in spicis brevibus paucifloris dispositi. Calyx membranaceus, translucidus, villosissimus, 7-8 mm. longus, angulosus, 5-lobatus; lobus medianus lanceolatus, acutus, laterales aequales, profunde lobulati, lobulis ovali-obtusis margine ciliatis longe stipitatis. Corolla purpurea; tubus calyce longior, 10-12 mm., cylindricus, angustus, non incurvatus, glaber; galea glabra (cujus pars inferior recte linearis 5-6 mm. longa), dorso rotundo, ecristata, in rostrum lineare leviter arcuatum 6-7 mm. longum apice dilatatum subito terminata; labium inferius galea longius, explicatum, tenuiter trilobatum; lobus medianus lateralibus paulo longior et multo angustior, ovalis, rotundatus, margine integer pilis raris ciliatus; lobi laterales multo majores, emarginati, denticulati. Filamenta ad faucem inserta, omnia glabra; antherae loculamenta apiculata. Stylus filiformis, rostrum corollae vix superans; stigma parum distinctum, globulosum, apice obscure bifidum; ovarium ovoideo-pyramidale, glabrum. Capsella et semina

"Yunnan: Eastern slopes of Likiang Snow Range, Yangtze watershed, en route to Saba. Flowers rich purple. Sept. 20, 1923." J. F. Rock. No. 10837.

51. **P. verbenaefolia**, Franch.

"Yunnan: Tsangshan Range, west of Talifu, alpine meadow. 12,000 ft. Flowers purple. August 1922." J. F. Rock. No. 6340.

D. Série *Tenuirostres*.

52. **P. Smithiana**, Bonati

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. Flowers white; alpine meadow. 15,000 ft. July 13, 1922." J. F. Rock. No. 5014.

"Yunnan: Mount Habashan, north of Ndaku, north of the Likiang Snow Range, Yangtze drainage basin. 12,000 ft. Flowers pale yellow, with purple tip. July 1923." J. F. Rock. No. 9650.

Also "12,000 ft. July 1923." J. F. Rock. No. 9654.

53. **P. alopecuros**, Franch.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range, alpine meadow. 12,000 ft. Flowers bright yellow, head purple. Aug. 10, 1922." J. F. Rock. No. 5709.

Also "Gau Hai Tze. 11-12,000 ft. Open scrub; flowers yellow, head purple. Aug. 16, 1922." J. F. Rock. No. 5870.

Also "Meadow. 11-12,000 ft. Flowers yellow, tip purple. Aug. 1923." J. F. Rock. No. 9827.

"Yunnan: Near Ngaza, drainage basin of the Yangtze, west of Likiang, Chiu Hai Tze. Flowers yellow, purple tipped. Aug. 1923." J. F. Rock. No. 10614.

E. Série *Siphonanthoidae*.

54. **P. gyrorrhyncha**, Franch.

"Yunnan: Between Likiang, Youngning, and Youngpei, en route to Mili (south-western Szechuan), Tsa Sec Pe. Flowers yellow. July 1922." J. F. Rock. No. 5309.

55. **P. integrifolia**, Hook. f.

"Yunnan: Yangtze watershed, Prefectural District of Likiang, eastern slopes of Likiang Snow Range. May-October 1922." J. F. Rock. No. 3797.

Also "Flowers purple. May-October 1922." J. F. Rock. No. 4922.

Also "Chui-Cha-Tze. Flowers purple. 14-16,000 ft. July 1922." J. F. Rock. No. 5443.

Also "Saba. 11,000 ft. Flowers reddish-purple. June 15, 1922." J. F. Rock. No. 8690.

List of Determinations.

3307	<i>Pedicularis</i>	<i>Magnini, Bonati</i>
3646	"	<i>densispica, Franch.</i>
3758	"	<i>filicula, Franch.</i>
3797	"	<i>integrifolia, Hook. f.</i>
3912	<i>Phtheirospermum</i>	<i>tenuisectum, Bur. et Franch.</i>
3940	<i>Pedicularis</i>	<i>lachnoglossa, Hook. f., var. macrantha, Bonati</i>
3972	"	<i>filicula, Franch.</i>
4050	"	<i>Rockii, Bonati</i>
4107	"	<i>axillaris, Franch.</i>
4145	"	<i>oxycarpa, Franch.</i>
4366	"	<i>filicula, Franch.</i>
4427	"	<i>lachnoglossa, Hook. f., var. macrantha, Bonati</i>
4457	<i>Phtheirospermum</i>	<i>tenuisectum, Bur. et Franch.</i>
4466	<i>Pedicularis</i>	<i>angustiflora, Limpr.</i>
4480	"	<i>obscura, Bonati</i>
4495	"	<i>lachnoglossa, Hook. f., var. macrantha, Bonati</i>
4502	"	<i>densispica, Franch., var. Schneideri, Bonati</i>
4515	"	<i>axillaris, Franch.</i>
4537	"	<i>rupicola, Franch.</i>
4554	"	<i>oxycarpa, Franch.</i>
4575	"	<i>aequibarbis, Hand.-Mzt.</i>
4627	<i>Phtheirospermum</i>	<i>tenuisectum, Bur. et Franch.</i>
4641	<i>Pedicularis</i>	<i>Delavayi, Franch.</i>
4667	"	<i>filicula, Franch.</i>
4680	"	<i>mahoangensis, Bonati (var. de P. rex?)</i>
4697	"	<i>rupicola, Franch.</i>
4745	"	<i>Forrestiana, Bonati</i>
4760	"	<i>densispica, Franch.</i>
4807	"	<i>rupicola, Franch.</i>
4808	"	<i>rupicola, Franch.</i>
4822	"	<i>cephalantha, Franch.</i>
4859	"	<i>aequibarbis, Hand.-Mzt.</i>
4864	"	<i>Forrestiana, Bonati</i>
4870	"	<i>axillaris, Franch.</i>
4887	"	<i>rex, Clarke</i>
4898	"	<i>densispica, Franch., var. Schneideri, Bonati</i>
4919	"	<i>Elwesii, Hook. f.</i>
4922	"	<i>integrifolia, Hook. f.</i>
4940	"	<i>likiangensis, Franch.</i>
4961	"	<i>densispica, Franch., var. Schneideri, Bonati</i>
4972	"	<i>cephalantha, Franch.</i>
4980	"	<i>densispica, Franch., var. Schneideri, Bonati</i>

- 4992 *Pedicularis filicula*, *Franch.*
 5009 " *rupicola*, *Franch.*
 5010 " *filicula*, *Franch.*
 5011 " *recurva*, *Maxim.*, var. *polyantha*, *Bonati*
 5014 " *Smithiana*, *Bonati*
 5023 " *superba*, *Franch.*
 5168 " *oxycarpa*, *Franch.*
 5202 " *longepetiolata*, *Franch.*
 5259 " *subacaulis*, *Bonati*
 5272 " *rhodotricha*, *Maxim.*
 5287 " *superba*, *Franch.*
 5306 " *polyphylloides*, *Bonati*
 5309 " *gyrorhyncha*, *Franch.*
 5310 " *comptoniaefolia*, *Franch.*
 5323 " *tenuisecta*, *Franch.*
 5339 " *comptoniaefolia*, *Franch.*
 5397 " *superba*, *Franch.*
 5431 *Pterygiella Duclouxii*, *Franch.*
 5440 *Pedicularis Elwesii*, *Hook. f.*
 5443 " *integrifolia*, *Hook. f.*
 5464 " *likiangensis*, *Franch.*
 5465 " *rupicola*, *Franch.*
 5466 " *Delavayi*, *Franch.*
 5473 " *subacaulis*, *Bonati*
 5551 " *cephalantha*, *Franch.*
 5560 " *pseudo-Steiningeri*, *Bonati*
 5605 " *longepetiolata*, *Franch.*
 5650 " *lachnoglossa*, *Hook. f.*, var. *macrantha*, *Bonati*
 5652 " *aequibarbis*, *Hand.-Mzt.*
 5662 " *tenuisecta*, *Franch.*
 5663 " *comptoniaefolia*, *Franch.*
 5690 " *longicaulis*, *Franch.*
 5700 " *lutescens*, *Franch.*, var. *ramosa*, *Bonati*
 5709 " *alopecuros*, *Franch.*
 5718 " *densispica*, *Franch.*, var. *Schneideri*, *Bonati*
 5737 " *polyphylloides*, *Bonati*
 5754 " *salviaeflora*, *Franch.*
 5771 " *pseudomelampyriflora*, *Bonati*
 5804 " *superba*, *Franch.*
 5810 " *lutescens*, *Franch.*, var. *brevifolia*, *Bonati*
 5846 " *tenuisecta*, *Franch.*
 5849 " *gracilis*, *Wall.*
 5868 " *longepetiolata*, *Franch.*
 5870 " *alopecuros*, *Franch.*
 5875 " *crenata*, *Maxim.*, var. *crenatiformis*, *Bonati*
 5913 " *Truchetii*, *Bonati*

- 5948 *Pedicularis rex*, *Clarke*
 5949 " *superba*, *Franch.*
 6019 " *gracilis*, *Wall.*
 6146 " *Maxonii*, *Bonati*
 6155 " *lachnoglossa*, *Hook. f.*, var. *macrantha*, *Bonati*
 6208 " *gracilis*, *Wall.*
 6306 " *sigmoidea*, *Franch.*
 6318 " *crenata*, *Maxim.*, var. *crenatiformis*, *Bonati*
 6319 *Pterygiella nigrescens*, *Oliv.*
 6340 *Pedicularis verbenaeifolia*, *Franch.*
 6486 " *siphonantha*, *D. Don*
 6546 " *rigida*, *Franch.*
 7126 " *lunglingensis*, *Bonati*
 8655 " *filicula*, *Franch.*
 8690 " *integrifolia*, *Hook. f.*
 9011 " *axillaris*, *Franch.*
 9024 " *filicula*, *Franch.*
 9054 " *axillaris*, *Franch.*
 9418 " *angustiflora*, *Limpr.*
 9419 " *lineata*, *Franch.*
 9434 " *likiangensis*, *Franch.*
 9441 " *Delavayi*, *Franch.*
 9455 " *superba*, *Franch.*
 9470 " *rex*, *Clarke*, var. *parva*, *Bonati*
 9613 " *rupicola*, *Franch.*
 9643 " *rupicola*, *Franch.*
 9645 " *lutescens*, *Franch.*, var. *ramosa*, *Bonati*
 9650 " *Smithiana*, *Bonati*
 9653 " *recurva*, *Maxim.*, var. *polyantha*, *Bonati*
 9654 " *Smithiana*, *Bonati*
 9683 " *habachanensis*, *Bonati*
 9730 " *tsekouensis*, *Bonati*
 9735 " *Elwesii*, *Hook. f.*
 9738 " *trichoglossa*, *Hook. f.*
 9763 " *dolichocymba*, *Hand.-Mzt.*
 9799 " *aequibarbis*, *Hand.-Mzt.*
 9827 " *alopecuros*, *Franch.*
 9829 " *Elwesii*, *Hook. f.*
 9830 " *siphonantha*, *D. Don*
 9885 " *Delavayi*, *Franch.*
 9904 " *subacaulis*, *Bonati*
 9913 " *siphonantha*, *D. Don*
 9915 " *recurva*, *Maxim.*, var. *polyantha*, *Bonati*
 9917 " *superba*, *Franch.*
 10006 " *longiflora*, *Rudolph*
 10007 " *siphonantha*, *D. Don*

10010	<i>Pedicularis rupicola</i> , <i>Franch.</i>	9010
10022	„ <i>Elwesii</i> , <i>Hook. f.</i>	9010
10341	„ <i>lineata</i> , <i>Franch.</i> , var. <i>dissecta</i> , <i>Bonati</i>	9010
10344	„ <i>trichoglossa</i> , <i>Hook. f.</i>	9010
10420	„ <i>macrocalyx</i> , <i>Bonati</i>	9010
10430	„ <i>Viali</i> , <i>Franch.</i>	9010
10431	„ <i>lutescens</i> , <i>Franch.</i> , var. <i>ramosa</i> , <i>Bonati</i>	9010
10437	„ <i>lineata</i> , <i>Franch.</i>	9010
10614	„ <i>alopecuros</i> , <i>Franch.</i>	9010
10624	„ <i>longepetiolata</i> , <i>Franch.</i>	9010
10625	„ <i>crenata</i> , <i>Maxim.</i> , var. <i>crenatiformis</i> , <i>Bonati</i>	9010
10628	„ <i>Pheulpini</i> , <i>Bonati</i>	9010
10662	„ <i>gruina</i> , <i>Franch.</i>	9010
10837	„ <i>sabaensis</i> , <i>Bonati</i>	9010
10877	„ <i>hirtella</i> , <i>Franch.</i>	9010
11442	„ <i>oxycarpa</i> , <i>Franch.</i>	9010
11533	„ <i>Rockii</i> , <i>Bonati</i>	9010